

REMARKS

Claims 1 – 8 are pending in this application. Claims 1 and 2 have been amended to more particularly define and distinctly claim the instant invention. In view of the foregoing amendments and following remarks, reconsideration of the application is respectfully requested.

Claims 1 – 8 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 -33 of U.S. Patent No. 6,186,790. In response thereto, a terminal disclaimer is being filed. The rejection has been overcome.

Claims 1 – 8 were rejected under 35 U.S.C. 112 , second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In response thereto, claims 1 and 2 have been amended to overcome the 112 rejection.

Claims 1 – 8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Klein (U.S. Pat. No. 4,457,714) in view of Scharf (U.S. Pat. No. 5,816,816) and Waknine (U.S. Pat. No. 4,544,359). The Examiner states that Klein '714 discloses a dental blank 18 comprised of a polymeric matrix having a filler which is subsequently ground into the desired shape. The Examiner notes that Klein discloses the use of a reinforcing metal bar 20, 21 rather than the claimed fiber reinforcement. The Examiner cites Scharf '816 to show that it is desirable to make the reinforcing bar out of high strength fiber materials as opposed to metal. The Examiner additionally cites Waknine '359 and states that the Waknine '359 patent discloses crown forms comprised of a polymeric matrix and a particulate component which may include borosilicate and barium silicate having a size of about 0.5 to 5 microns. The Examiner concludes that to have merely specified the Waknine '359 filler for the disclosed Klein '714 filler would have been obvious to one of ordinary skill in the art. For the reasons set forth below, the rejections are respectfully traversed.

The claimed invention is now directed to a blank for use in a CAD/CAM system for the manufacture of a dental restoration comprising a prefabricated preshaped block comprising a particulate filler material, a fibrous material, and a polymeric matrix material which is formed by a resin; wherein the block is cured to a hardness for use in a

dental restoration; wherein the particulate filler material is present in an amount of up to about 30%; wherein the fibrous material is present in an amount in the range of about 20% to about 30%; wherein the fibrous material is distributed uniformly in the resin; and wherein the fibrous material is thoroughly wetted by the resin.

Klein '714 is directed to a block of acrylic or porcelain material having a single horizontally extending metal bar extending through the central section thereof. Klein '714 inserts the metal bar into the block to provide support for the bridge and to provide a means to bond the bridge to the abutting teeth. This is nothing like the claimed invention wherein fibrous material is distributed uniformly in the resin and wherein the fibrous material is thoroughly wetted by the resin. Klein '714 is not concerned with fibers being distributed uniformly throughout the block to provide uniform strength throughout the block. In fact the horizontally extending metal bar in the block in Klein '714 is not a fibrous reinforcement, but a large bar of metal. There is no suggestion or showing in Klein '714 directed to fiber reinforcement distributed uniformly throughout the block in Klein '714.

Scharf '816 does not cure the deficiencies of Klein '714. Scharf '816 is directed to pontics having reinforcement in the form of a single piece or flat section of fiber reinforced composite material that extends or cuts through the middle of the pontic or similar component. The reinforcement is limited to the central or mid section of the pontic. It is not uniformly distributed throughout the pontic or component as in the claimed invention. As discussed above, Klein '714 and Scharf '816 are more similar to one another than to applicants' claimed invention in that Klein '714 and Scharf '816 are both directed to bars (Klein '714) or fiber reinforcement components (Scharf '816) extending across and through the body or block of the pontic, but not extending uniformly throughout as in the claimed invention. The block in Klein '714 is structurally distinguishable from the block in the claimed invention in that the block of the claimed invention does not include bars extending from the sides thereof which would make it impossible to mill or machine in a computer assisted milling machine. Klein '714 is not concerned with fiber-reinforced composite material, but with a block of polymeric material having a bar extending therethrough. There is no motivation in Scharf '816 to distribute fibers uniformly throughout the block of Klein '714 since Scharf '816 does not

disclose or teach such. The invention is not rendered obvious by the combination of cited references.

Furthermore, Waknine '359 does not cure the deficiencies of Klein '714 and Scharf '816. Waknine '359 is directed to a filled composite system useful for caries, fractures, lesions, chipping, lengthening, restoring or reconstructing, modification of tetracycline stained teeth, cervical erosion veneers and the like (column 9, lines 48-52). Waknine '359 discusses cavity preparation using the composite system which involves acid etching the enamel to be treated, applying a bonding agent over the etched enamel, and thereafter placing the filled composite resin into the cavity preparation. The filled composite resin is then manually shaped and contoured. Also, crown forms and matrix strips may be used to further shape the resin and restore the anatomic form to the tooth. In this application, the crown forms and strips are not dental resinous materials, but are devices used to shape the cavity filling to the required shape. Although there is no recitation as to what the crown forms and matrix strips are fabricated of, it is irrelevant since the crown forms and matrix strips are not: (1) blocks or blanks of material; and (2) are not used as the material which actually creates or "makes up" the dental restoration. The crown forms and matrix strips mold and shape the dental resin material; they are not used as the dental material. Applicants are not in agreement with the Examiner in his statements regarding Waknine '359, in that Waknine '359 discloses blanks and that the blanks of Waknine '359 are machined into desired shape. According to Webster's II New College Dictionary, block (which is synonymous with "blank" in CAD/CAM technology) is defined as "a solid piece, as of wood, with one or more flat sides." Page 119. (copy attached). Waknine '359 does not describe blocks and does not describe machining blocks using a CAD/CAM machine to form a dental restorative material.

Reference is further made to (1) enclosed product literature from Jeneric/Pentron Inc. entitled "*NEW FROM Jeneric®/Pentron® INCORPORATED*" which shows Build-It® Core Forms; (2) enclosed product literature from the internet from *pulpdent.com* showing Pulpdent Core Forms; (3) enclosed product literature from the internet from *denovodental.com* showing Denovo preformed matrix bands; and (4) U.S. Patent Nos. 4,129,946 and 5,330,353, showing crown forms and matrix bands, respectively. The enclosed materials are consistent with the use of matrix strips and crown forms as

described in the Waknine '359 patent. The crown forms may be manufactured of various materials such as plastic or cellulose-acetate materials. They are typically thin shell-like hollow bodies shaped to correspond to a specific natural tooth. They serve as molds to hold and shape the restoration during application to and upon setting or curing on the prepared tooth. They are not "blocks" of material and they are not machined into dental restorative materials. They are not used as a restorative material to permanently bond to the tooth, but merely as molds to help shape the restorative material applied to the tooth. Similarly, matrix bands are strips of metal or plastic material used to hold the restorative material in place prior to and during curing thereof. Both the crown forms and matrix strips are removed from the mouth after the curing of the dental restorative material has occurred.

The claimed invention is nothing like the crown forms or matrix strips described by Waknine '359, but is directed to the actual materials used to restore the tooth and are permanently retained in the mouth. The crown forms and matrix strips are not necessary to use with the claimed invention because the blocks of the claimed invention are shaped by milling machines. There is no need to use crown forms or matrix strips herein. The Waknine '359 patent actually teaches away from the claimed invention which can not use crown forms and matrix strips for shaping, since the blocks of the instant invention are milled and shaped by CAD/CAM systems. None of the references show or suggest applicants' claimed invention and notice to this effect is respectfully requested.

In summary, none of the applied references teach to a blank for use in a CAD/CAM system for the manufacture of a dental restoration comprising a prefabricated preshaped block comprising a particulate filler material, a fibrous material, and a polymeric matrix material which is formed by a resin; wherein the block is cured to a hardness for use in a dental restoration; wherein the particulate filler material is present in an amount of up to about 30%; wherein the fibrous material is present in an amount in the range of about 20% to about 30%; wherein the fibrous material is distributed uniformly in the resin; and

Accordingly, it is believed that claims 1 – 8 specify patentable subject matter and are now in condition for allowance. Applicants therefore respectfully request favorable reconsideration and allowance of this application. The Examiner is requested to

telephone Applicants' attorney at the number listed below if it will advance the prosecution of this case. If necessary, the Examiner is authorized to charge further fees necessary to advance the prosecution in this case from Deposit Account No. 500718.

Respectfully submitted,

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Ann M. Knab
Attorney for Applicant
Registration No. 33,331
Customer Number 34, 214

Pentron Corporation
53 North Plains Industrial Road
Wallingford, CT 06492
Telephone (203) 265-7397 x508

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